T15D10 – (Part 15.2) Born-Haber Cycle

Name _____

1. 15.2.1 Define and apply the terms lattice enthalpy and electron affinity. (2)
    a. Define lattice enthalpy

    b. What do values of lattice energy refer to?

    c. What has an effect on lattice enthalpy?

    d. What is the first electron affinity?

    e. What is the second electron affinity?

    f. Explain the trend in electron affinity for the halogens:

2. 15.2.2 Explain how the relative sizes and the charges of ions affect the lattice enthalpies of different ionic compounds. (3)
    a. What are electrostatic forces?

    b. Use Coulomb's Law to explain the lattice effects of charges (MgO vs NaF)

    c. Explain the effect of size on lattice enthalpy:

3. 15.2.3 Construct a Born–Haber cycle for group 1 and 2 oxides and chlorides, and use it to calculate an enthalpy change. (3)
    a. Give a general sketch of the Born-Haber Cycle

b. Example for NaCl

c. Example for $MgCl_2$

4. 15.2.4 Discuss the difference between theoretical and experimental lattice enthalpy values of ionic compounds in terms of their covalent character. (3)
    a. Next class!